



MINT Intelligent I/Os & Communication Processor

DI-16 16-Channel Digital Input Module
DO-16 16-Channel Digital Output Module
AI-08 8-Channel Analog Input Module
AO-08 8-Channel Analog Output Module
MINT CP - Communication Processor
MINT IO Pair



Masibus' MINT I/O series is the most cost effective field interface module for smart systems whether it is DAS, SCADA, PLC or DCS. The MINT I/Os are available in universal 8 channel analog Input, 8 channel analog output, 16 channel digital input and 16 channel digital output.

Using MINT I/Os supervisory system one can read remote process values and events as well as communicate for process control. These I/Os consist of powerful processors suited for high-speed communication and enhanced hardware features.

The MINT I/O family has Modbus RTU & Ethernet-Modnet port that integrates with same type of existing network in plant.

MINT DI module has unique filter time selection feature for input noise cancellation and debounce time feature to prevent extra events from a single contact closure. MINT DI can also store counter input of frequency up to 1KHz.

MINT CP is a communication processor which connects MINT I/Os and any make of serial Modbus-RTU devices to a Modnet Ethernet network.

mINT PLUS configuration software configures all communicating parameters in MINT series.

The MINT series is best suited for processes that require reliable and efficient control with high speed connectivity for system monitoring and information exchange up to the corporate network.

Features

MINT I/O

- 2 Modbus serial ports RS-485
- 1 RS-485 + 1 Modbus over TCP/IP port - Modnet (Optional)
- 2 masters can be connected at a time in MINT with 2 RS-485 port option
- Compact DIN-Rail enclosure
- High-speed communication
- Supports up to 15 clients on TCP/IP
- LEDs for fault, communication and power

MINT CP

- No. of Modbus serial slave devices supports on RS-485 - 15 max.
- Modbus over Ethernet (Modnet) - 10/100Mbps- auto-detecting
- Serial RS-485 (Protocol supported: Modbus RTU master)

Free **mINT PLUS** Configuration Software

- Configuration and diagnostics
- Online excel sheet logging

Applications

- Pulse totalizing - Utility accounting
- Cost effective field interface to PLC/DCS
- Remote I/Os for monitoring and control
- SCADA
- Security systems
- Solar string monitoring
- Building automation
- Gas detection systems
- Pipeline monitoring
- Environmental monitoring
- Infrastructure monitoring
- Asset management

TECHNICAL SPECIFICATIONS: MINT I/O RS485 - ETHERNET

AI-08 Module				DO-16 Module		
Input Specifications				Output Specifications		
No. of Channels		8		Output Type	Open collector (External 24V DC required) (Source or sink - factory set)	
Input Types	Thermocouple	E	-200 °C to 1000 °C	Default/Pre-defined Value	ON/ OFF	
		J	-200 °C to 1200 °C	Pulse Width	10msec.	
		K	-200 °C to 1350 °C	Maximum Current	100mA per output (Total current for output No.1 to 8 <500mA) (Total current for output No.9 to 16 <500mA)	
		T	-200 °C to 400 °C			
		B	450 °C to 1800 °C			
		R	0 °C to 1750 °C	Vce ON	1.1V max.	
		S	0 °C to 1750 °C	Status Indication		
	RTD	N	-200 °C to 1300 °C	LEDs	Power, module status, communication, channel status	
		Pt100 (3 wire)	-200 °C to 850 °C	Configuration Software		
		Cu-53	-210 °C to 210 °C	mINT PLUS Software	Configuration and diagnostics Online excel sheet logging Logging time selectable : 1 to 65535 msec.	
	Resistor Input	NI-120	-80 °C to 210 °C	Communication		
		Upto 2kΩ	0-2000	RS-485 Serial Port		
	Current	0/4 -20mA (Ext. 50Ω resistor)		Voltage	Protocol	Modbus-RTU slave
		-2000 to +20000			No. of Port	2
					Communication Speed (Baud Rate)	9600, 19200, 38400, 57600,115200 bps
					Parity	ODD, EVEN ,NONE
					0 to +10V	-2000 to +20000
Voltage	0 to +100mV	-2000 to +20000	Stop Bit	1, 2		
	-10mV to +50mV	-2000 to +20000	Default Settings	9600, 8 data bits, 1 stop bit, no parity		
	0 to +250mV	-2000 to +20000	Connector	Plug-in screw terminals, 1.5mm² cable size		
	0 to +5V	-2000 to +20000	Recommended Cable	Shielded, twisted pair, size: 0.14mm²		
			Ethernet Port (Optional)			
Accuracy	0.1% of FS		Protocol	Modbus TCP/IP (Modnet)		
Scan Rate	T/C & voltage/current: 50mSec./channel RTD: 100mSec./channel		No. of Port	1		
ADC Resolution	16 bit		Speed	10/100 Mbps (auto-detecting)		
NMRR	>60dB		Maximum No. of Read Registers	1024		
CMRR	>120dB		Maximum No. of Write Registers	1024		
Temp-Co	100 ppm/°C		Connector	RJ45 (auto-crossover)		
CJC Error	±2°C (0 to 55°C)		No. of Clients Supported	Up to 15		
Input Impedance	V, mV, TC >1 MΩ		Power Supply			
Sensor Burnout Current	0.5µA		Power Supply	18 - 32VDC ±10%		
RTD Excitation Current	250µA		Power Consumption	For I/O with only RS-485 < 3W For I/O with ethernet < 5W		
Max Voltage	20V DC		Isolation			
Range Scaling	Current/voltage inputs only		Supply to field: 1500VAC RMS Supply to RS-485: 1500VAC RMS Supply to ethernet: 1000VAC RMS			
DI-16 Module				Power Supply		
No of Channels		16		18 - 32VDC ±10%		
Counter Frequency		1 KHz max.		For I/O with only RS-485 < 3W For I/O with ethernet < 5W		
Counter Resolution		32 bit		Isolation		
Counter Mode		Up/Down		Supply to field: 1500VAC RMS Supply to RS-485: 1500VAC RMS Supply to ethernet: 1000VAC RMS		
Pulse Width		500µSec.		Physical		
Filter Time (ms)		0 to 65535 msec.		101(H) x 22.5(W) x 120(D) for I/O with only RS-485		
De-bounce Time (ms)		0 to 65535 msec.		Dimensions (in mm)		
Chatter Filter Time		0 to 65535 msec.		101(H) x 48.5(W) x 120(D) for I/O with Ethernet		
Chatter Filter Counts		1 to 250 events		Mounting		
Input Impedance		2200 Ω		DIN-Rail (35 mm)		
AO-08 Module				Weight		
No. of Channels		8		160 gms approx. – For I/O with only RS-485 250 gms approx. – For I/O with Ethernet		
Output Types	Current	0-20mA/ 4-20mA @ 750 Ω max. (external 24V DC required)		Enclosure Material		
	Voltage	0.05 -10/ 2-10 VDC @ 2KΩ min. (external 24V DC required)		Molded ABS		
DAC Resolution		16 bit		Color		
Accuracy		0.05% of FS		Black		
Temp-Co		100 ppm/°C		Environmental		
				Operating Temperature		
				0 to 55 °C		
				Storage Temperature		
				-10 to 70 °C		
				Humidity		
				30 to 95 %RH non-condensing		

MINT CP MODULE

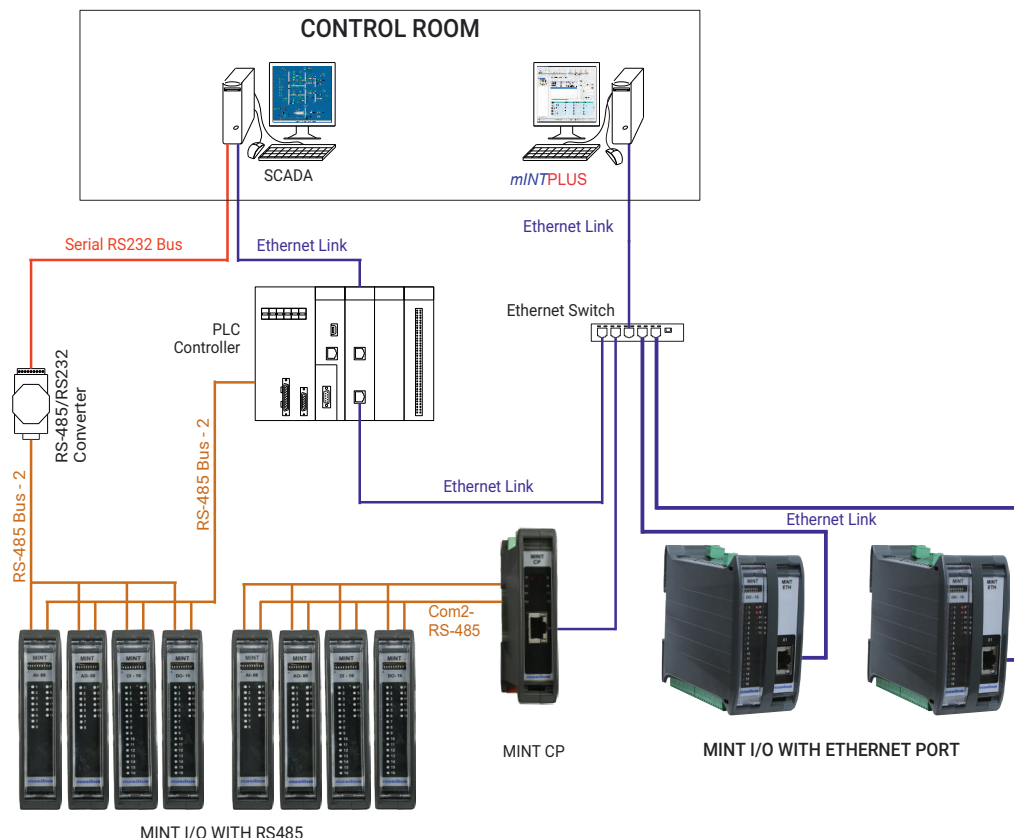
Performance		Ethernet Port	
Processor	32-bit CPU ARM core	Protocol	Modbus TCP/IP (Modnet)
Maximum No. of Read Registers	1024	No. of Port	1
Maximum No. of Write Registers	1024	Speed	10/100 Mbps (auto-detecting)
Maximum No. of Modbus Commands Supported	100	Connector	RJ45 (auto-crossover)
No. of Slave Devices Supported per Serial Port	No. of Modbus devices supports on serial port - 15	Power Supply	
No. of Clients Supported on TCP/IP	Up to 15	Logic Supply Voltage	18 - 32V DC
		Logic Supply Current	100mA max. @ 24VDC
		Power Consumption	< 2.5W
		Isolation	Supply to RS-485: 1500V AC RMS Supply to Ethernet: 1000V AC RMS
Configuration Software		Physical	
mINT PLUS Software	Configuration and diagnostics	Enclosure Material	ABS plastic
		Mounting	DIN-Rail (35 mm)
Communication		Dimension (H x W x D)	101 mm x 22.5 mm x 120 mm
RS-485 Serial Port		Color	Black
Protocol	Modbus-RTU slave	Weight	160 g
No. of Port	2	Environmental	
Communication Speed (Baud Rate)	9600, 19200, 38400, 57600,115200 bps	Operating Temperature	0 °C to 55 °C
Parity	ODD, EVEN, NONE	Storage Temperature	-10 °C to 70 °C
Data Bits	8	Humidity	30 to 95% RH non-condensing
Stop Bit	1, 2		
Default Settings	9600, 8 data bits, 1 stop bit, no. parity		
Connector	Plug-in screw terminals, 1.5mm ² cable size		
Recommended Cable	Shielded, twisted pair, size: 0.14mm ²		

Ordering Code

	I/O Type		AI Channel Type		MINT I/O DO Type		AO Type		Communication		
Model MINT	XX		X		X		X			Port 1	Port 2
	AI	8 channel analog input	N	None	N	None	N	None	SS	RS-485	RS-485
	DI	16 channel digital input	0	8 Channel universal	0	Sink type	I	Current O/P	SE	RS-485	Ethernet
	AO	8 channel analog output			1	Source type	V	Voltage O/P			
	DO	16 channel digital output									

Model
MINT CP

Application



Head Office: Masibus Automation And Instrumentation Pvt. Ltd.
B-30, GIDC Electronics Estate, Sector-25, Gandhinagar-382024, Gujarat, India.
Tel: +91 79 23287275-77, Fax: +91 79 23287281.
E-mail: sales@masibus.com, Web: www.masibus.com

All specifications are subject to change without notice
due to continuous improvements.
Doc. Ref. MINT I/Os - MINT CP/ R6E/1225